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| 22879 | 7590 | 06/06/2007 | EXAMINER | |
| HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400 | | | DAILEY, THOMAS J | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | |
|------------------------------|------------------------|--------------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/666,174 | CHADALAPAKA, MALLIKARJUN |
| | Examiner | Art Unit |
| | Thomas J. Dailey | 2152 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 18 September 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-23 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 9/18/2003.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

DETAILED ACTION

1. Claims 1-23 are pending in this application.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-7 and 23 are rejected under 35 U.S.C.101 because the claimed invention is directed to non-statutory subject matter.
4. Claims 1-7 are directed to "An apparatus for acknowledging a data transfer, comprising: a first protocol... and a second protocol..." An apparatus comprising only protocols, protocols, defined in the art as a set of rules governing the format of messages that are exchanged between computers, amounts to nonfunctional descriptive material. When nonfunctional descriptive material is recorded on some computer-readable medium, in a computer or on an electromagnetic carrier signal, it is not statutory since no requisite functionality is present to satisfy the practical application requirement. Merely claiming nonfunctional descriptive material, i.e., abstract ideas, stored on a computer-readable medium, in a computer, or on an electromagnetic carrier signal, does not make it statutory.

5. Claim 23 is directed to a program comprising a machine-readable medium that stores two protocols. A machine readable medium can be reasonable be interpreted as transmission media. Claims drawn to components involving signals encoded with functional descriptive material do not fall within any of the categories of statutory subject matter as set forth in 35 U.S.C. 101, and are therefore, ineligible for protection.

6. Claim 23 is further rejected as it is directed to a program comprising a machine-readable medium that stores two protocols. A protocol is defined in the art as a set of rules governing the format of messages that are exchanged between computers and amounts to nonfunctional descriptive material. When nonfunctional descriptive material is recorded on some computer-readable medium, in a computer or on an electromagnetic carrier signal, it is not statutory since no requisite functionality is present to satisfy the practical application requirement. Merely claiming nonfunctional descriptive material, i.e., abstract ideas, stored on a computer-readable medium, in a computer, or on an electromagnetic carrier signal, does not make it statutory.

Claim Rejections - 35 USC § 112

7. The following are quotations of the first and second paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

9. Claim 1, recites, "a first protocol that is adapted to generate a request for a data transfer" (line 2) and "a second protocol that is adapted to: receive...(line 4) determine...(lines 5-6) send a performance request corresponding to the request for a data transfer to a third protocol (lines 7-8)." One of ordinary skill in the art defines a protocol as a set of rules governing the format of messages that are exchanged between computers, and the protocols used in the specification and claims (iSCSI (claim 2), iSER (claim 3), and RDMA (claim 6)) fit with this definition. These specific protocols and protocols in general do not generate, send, or receive requests, nor do they determine what a request contains. Internet Small Computer Interface (iSCSI), for example, is network protocol standard that defines standards that allow SCSI protocol communication over TCP/IP networks. It does not physically do anything; it is essentially a data structure. While the specification recites similar limitations to what is recited in the claims, this does not adequately enable one of ordinary skill in the art to make and use the invention because protocols are being used to carry out

process steps without elaboration as to how such steps can be carried out by a set of rules governing the format of messages that are exchanged between computers.

10. Claim 8, recites, "a first protocol layer that interacts with the consumer" (line 8) and "a second protocol layer that is adapted to: receive...(line 10) examine...(line 11-12) send a performance request corresponding to the request for a data transfer to a third protocol (line 13-14)." One of ordinary skill in the art defines a protocol as a set of rules governing the format of messages that are exchanged between computers, and the protocols used in the specification and claims (iSCSI (claim 15) and RDMA (claim 11)) fit with this definition. These specific protocols and protocols in general do not generate, send, or receive requests, nor do they determine what a request contains. Internet Small Computer Interface (iSCSI), for example, is network protocol standard that defines standards that allow SCSI protocol communication over TCP/IP networks. It does not physically do anything; it is essentially a data structure. While the specification recites similar limitations to what is recited in the claims, this does not adequately enable one of ordinary skill in the art to make and use the invention because protocols are being used to carry out process steps without elaboration as to how such steps can be carried out by a set of rules governing the format of messages that are exchanged between computers.

11. Claim 16, recites, "receiving a request for a data transfer from a first protocol" (line 2), "sending a performance request corresponding to the request for data transfer to a second protocol" (lines 5-6), and "sending an acknowledgement to the first protocol upon the occurrence of the event" (lines 9-10). One of ordinary skill in the art defines a protocol as a set of rules governing the format of messages that are exchanged between computers, and the protocols used in the specification and claims (iSCSI (claim 17) and RDMA (claim 18)) fit with this definition. These specific protocols and protocols in general do not generate, send, or receive requests, nor do they determine what a request contains. Internet Small Computer Interface (iSCSI), for example, is network protocol standard that defines standards that allow SCSI protocol communication over TCP/IP networks. It does not physically do anything; it is essentially a data structure. While the specification recites similar limitations to what is recited in the claims, this does not adequately enable one of ordinary skill in the art to make and use the invention because protocols are being used to carry out process steps without elaboration as to how such steps can be carried out by a set of rules governing the format of messages that are exchanged between computers.

12. Claims 22 and 23 are rejected by the same rationale set forth in claims 1, 8, and 16's rejections.

13. Claims 2-7, 9-15, and 17-21, are rejected due to their dependence on the previously rejected claims, and are additionally rejected for their un-enabled use of protocols that was outlined in claims 1, 8, and 16's rejections (e.g. claim 15, "wherein the process is a small computer systems interface protocol").

14. Claims 2-7, 9-15, and 17-23, are rejected by the same rationale set forth in claims' 1, 8, and 16 rejections.

15. Claims 1-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

16. Claim 1 recites, "a first protocol that is adapted to generate a request for a data transfer" (line 2) and "a second protocol that is adapted to: receive... (line 4) determine...(lines 5-6) send a performance request corresponding to the request for a data transfer to a third protocol (lines 7-8)." It is unclear how a protocol, defined to one of ordinary skill in the art as a set of rules governing the format of messages that are exchanged between computers, can generate, send, or receive requests or determine what a request contains. Protocols do not physically do anything; they are essentially a data structure.

17. Claims 8, 16, 22 and 23 are rejected by the same rationale set forth in claim 1's rejection.

18. Claims 2-7, 9-15, and 17-21, are rejected due to their dependence on the previously rejected claims, and are additionally rejected for their unclear use of protocols (e.g. claim 15, "wherein the process is a small computer systems interface protocol").

19. Claims 1, 8-9, and 23, use the term "adapted to" (claim 1: lines 2 and 3; claim 8: line 9; claim 9: line 2; claim 23: line 6). The recitation of "adapted to" only suggests, but does not require, what is recited after "adapted to" to be performed.

20. Claim 8 recites, "the consumer" (line 8). There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

22. Claims 1-6, 8-18, and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta et al (US Pub No. 2004/0156393), hereafter "Gupta" in view of Fukae et al (US Pub. No. 2002/0199051), hereafter "Fukae."

23. As to claim 1, Gupta discloses an apparatus for acknowledging a data transfer (Abstract), comprising:

a first protocol that is adapted to generate a request for a data transfer ([0063], lines 9-11);

and a second protocol that is adapted to:
receive the request for the data transfer from the first protocol ([0063], lines 9-11);

determine whether the request for the data transfer contains a request for acknowledgement of completion of the data transfer ([0063], lines 18-20);

if the request for data transfer does contain a request for acknowledgement of the completion of the data transfer, set a variable in memory to wait for an event to correspond to the completion the request for data transfer and send an acknowledgement to the first protocol upon the occurrence of the event ([0063], lines 18-22, a variable is inherently set in memory that corresponds to the completion of the request otherwise it would not be aware when the last acknowledgment is received).

But, Gupta does not disclose sending a performance request corresponding to the request for data transfer.

However, Fukae discloses sending a performance request corresponding to the request for data transfer ([0108]-[0109], a transfer speed (a factor of performance) is negotiated and then a request to maintain that speed is made).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Gupta and Fukae in order to have control over how fast the data transfer is and thereby overall giving greater control over the system to the user or programmer.

24. As to claim 8, Gupta discloses a network, comprising:

a plurality of systems, at least one of the plurality of systems comprising a protocol stack and a process (Fig. 6, and [0060]);

at least one input/output device (Fig. 6, and [0060]);

a network that connects the plurality of systems and the at least one input/output device for communication (Fig. 6, and [0060]); and

wherein the protocol stack comprises:

a first protocol layer that interacts with the consumer (Fig. 4 and [0052]);

a second protocol layer that is adapted to:

receive a data exchange request from the first protocol layer ([0063], lines 9-11);

examine the data exchange request to determine if an acknowledgement request is indicated ([0063], lines 18-20);

But, Gupta does not disclose sending a performance request corresponding to the data exchange request to a third protocol layer and if the data exchange request contains the acknowledgement request, set a variable in memory to wait for an event that corresponds to the completion of the performance request and send an acknowledgement to the first protocol layer upon the occurrence of the event.

Fukae discloses:

a data exchange request (Abstract);
sending a performance request corresponding to the data exchange request to a third protocol layer transfer ([0108]-[0109], a transfer speed (a factor of performance) is negotiated and then a request to maintain that speed is made) and if the data exchange request contains the acknowledgement request, set a variable in memory to wait for an event that corresponds to the completion of the performance request and send an acknowledgement to the first protocol layer upon the occurrence of the event ([0110]-[0111], a timer is set that waits for the confirmation of the transfer speed).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Gupta and Fukae in order to have control over how fast the data transfer is and thereby overall giving greater control over the system to the user or programmer.

25. As to claims 16 and 23, they are rejected by the same rationale set forth in claim 1's rejection.

26. As to claim 22, it is rejected by the same rationale set forth in claim 8's rejection.

27. As to claims 2 and 17, Gupta and Fukae disclose the invention substantially with regard to the parent claims 1 and 16, and further disclose the first protocol is an internet small computer systems interface ("iSCSI") protocol (Gupta, [0048]).

28. As to claims 3 and 13, Gupta and Fukae disclose the invention substantially with regard to the parent claims 1 and 8, and further disclose the second protocol is an internet small computer systems interface extensions for remote direct memory access ("iSER") protocol (Gupta, [0048]).

29. As to claims 4 and 14, Gupta and Fukae disclose the invention substantially with regard to the parent claims 1 and 8, and further disclose the request for the data

transfer comprises an attribute that indicates the request for acknowledgement of completion of the data transfer (Gupta, [0063], lines 18-25).

30. As to claim 5, Gupta and Fukae disclose the invention substantially with regard to the parent claims 1, and further disclose a value of an error recovery level is notified to the second protocol from the first protocol (Fukae, [0069]).
31. As to claims 6 and 18, Gupta and Fukae disclose the invention substantially with regard to the parent claims 1 and 16, and further disclose the third protocol is a remote direct memory access ("RDMA") protocol (Gupta, [0048]).
32. As to claims 7 and 19, Gupta and Fukae disclose the invention substantially with regard to the parent claims 1 and 9, and further disclose the event relates to a zero length remote direct memory access ("RDMA") read completion.
33. As to claim 9, Gupta and Fukae disclose the invention substantially with regard to the parent claim 8, and further disclose receive the performance request that corresponds to the data exchange request (Fukae, Abstract, lines 1-8 and [0108]-[0109]); and transmit a message to one of the at least one of the plurality of systems and the at least one input/output device via the network (Fukae, Abstract, lines 1-8).

34. As to claim 10, Gupta and Fukae disclose the invention substantially with regard to the parent claim 8, and further disclose a remote direct memory access network interface card ("RNIC") that is used by the protocol stack to exchange the message between the at least one of the plurality of systems and the at least one input/output device via the network (Gupta, [0047] discloses the NIC and [0048] discloses it is RDMA enabled).

35. As to claims 11 and 20, Gupta and Fukae disclose the invention substantially with regard to the parent claims 8 and 16, and further disclose the message is a remote direct memory access ("RDMA") write message (Gupta, [0047]-[0048]).

36. As to claim 12, Gupta and Fukae disclose the invention substantially with regard to the parent claim 16, and further disclose the message is a zero length remote direct memory access ("RDMA") read message (Gupta, [0047]-[0048]).

37. As to claim 15, Gupta and Fukae disclose the invention substantially with regard to the parent claim 8, and further disclose the process is a small computer systems interface protocol ("SCSI") (Gupta, [0048]).

38. As to claim 21, Gupta and Fukae disclose the invention substantially with regard to the parent claim 16, and further disclose establishing an error recovery level

by the first protocol to indicate the error recovery level in the request for acknowledgement of completion of the data transfer (Fukae, [0069]).

39. Claims 7 and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta in view of Fukae, as applied to claims 8 and 16, in further view of Cheriton et al (US Pat. 6,675,200), hereafter "Cheriton."

40. As to claims 7 and 19, Gupta and Fukae disclose the invention substantially with regard to the parent claims 1 and 9, and but do not disclose setting the variable in memory to wait for an event when the event relates to a zero length remote direct memory access ("RDMA") read completion.

However, Cheriton discloses setting the variable in memory to wait for an event when the event relates to a zero length remote direct memory access ("RDMA") read completion (column 6, lines 30-35).

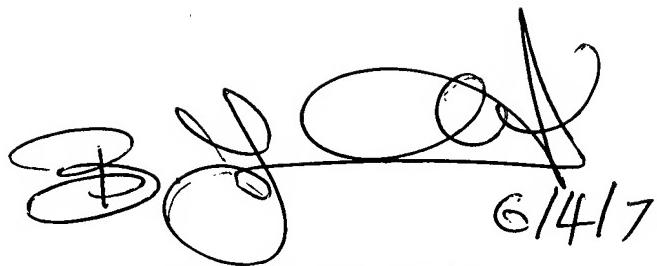
Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Gupta and Fukae with Cheriton in order use a known practice to indicate that there is no more data to send.

Conclusion

41. For additional prior art made of record and not relied upon and considered pertinent to applicant's disclosure see attached Notice of References Cited, Form PTO-892.
42. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas J. Dailey whose telephone number is 571-270-1246. The examiner can normally be reached on Monday thru Friday; 9:00am - 5:00pm.
43. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on 571-272-3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
44. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



TJD
5/31/2007



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SUPERVISORY PATENT EXAMINER

6/4/17